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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,042	07/31/2003	Niranjan Damera-Venkata	200313591-1	9643

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EXAMINER	
KOVALICK, VINCENT E	
ART UNIT	PAPER NUMBER
2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/632,042	DAMERA-VENKATA ET AL.	
	Examiner	Art Unit	
	Vincent E. Kovalick	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13-17* is/are allowed.

6)☒ Claim(s) *1,11,18,19,21 and 23-24* is/are rejected.

7)☒ Claim(s) *2-10,12,20 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/31/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :7/31/03 & 2/13/04 & 12/27/04 & 4/11/05.

DETAILED ACTION

1. This Office Action is in response to Applicant's Patent Application, Serial No. 10/632,042, with a File Date of July 31, 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (USP 6,040,812) taken with Gibbon (WO 01/69942 A12).

Relative to claim 1, Lewis **teaches** an active matrix display with integrated drive circuitry (col. 1, lines 54-67; col. 2, lines 1-67 and col. 3, lines 1-39); Lewis further **teaches** a method of displaying an image with a display device, the method comprising: receiving image data for the image (Abstract); generating a first sub-frame and as second subframe based on combinations of pixel values form the image data (col. 216, lines 56-67).

Lewis **does not teach** alternating between displaying the first sub-frame in a first position and displaying the second sub-frame in a second position spatially offset form the flirt position.

Gibbon et al. **teaches** methods and apparatuses for superimposition of images (pg. 1, lines 21-32, pg. 2, lines 1-33 and pg. 3, lines 1- 15); Gibbon et al. further **teaches** alternating between

displaying the first sub-frame in a first position and displaying the second sub-frame in a second positions spatially offset form the first position (pg. 3, lines 18-27).

It would have been obvious to a person of ordinary skill in the art at the time of the inventions to provide to the methodology as taught by Lewis the feature as taught by Gibbon et al. in order to produce an integrated high resolution image.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis taken with Gibbon et al. as applied to claim 1 in item 3 hereinabove, and further in view of Hong et al. (Pub. No. US 2003/0053692 A1).

Regarding claims 11, Lewis taken with Gibbon et al. **does not teach** generating a first sub-frame and second sub-frame based on combinations of pixel values from the image data wherein the combinations are linear combinations.

Hong et al. **teaches** a method of and apparatus for segmenting a pixellated image (pg. 1, paras. (002-0011); Hong. et al. further **teaches** combinations of pixel values from the image data wherein the combinations are linear combinations (pg. 4, para. 0055).

It would have been obvious to a person of ordinary skill in the art at the time of the inventions to provide to the methodology as taught by Lewis taken with Gibbon et al. the feature as taught by Hong et al. in order to facilitate generation of high resolution images.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon et al. taken. with Queiroz et al. (Pub. No. US 2001/0000711 A12), in view of Machida (US RE38,726 E).

Relative to claims 18, Gibbon et al. **teaches** a system for generating sub-frames for display at spatially offset positions to generate the appearance of a higher resolution image, the system comprising: means for receiving a first image (con. 3, lines 18-27; Abstract and Fig. 1).

Gibbon et al. **does not teach** means for identifying a plurality of blocks of pixels in the first image; and means for generating a plurality of sub-frames based on combinations of the pixels in each identified block of pixels.

Queiroz et al. **teaches** a method and apparatus for improving the quality of images (pg. 2, paras. (0013-0015); Queiroz et al. further **teaches** means for identifying a plurality of blocks of pixels in the first image (pg. 4, para 0037).

It would have been obvious to a person of ordinary skill in the art at the time of the inventions to provide to the system as taught by Gibbon et al. the feature as taught by Queiroz et al. in order to provide the means for selecting the pixels required to produce a desired image.

Gibbon et al. taken with Queiroz et al. **does not teach** and means for generating a plurality of sub-frames based on combinations of the pixels in each identified block of pixels.

Machida **teaches** a method for encoding/decoding picture signals (col. 4, lines 66-67 and col. 5, lines 1-53); Machida further **teaches** means for generating a plurality of sub-frames based on combinations of the pixels in each identified block of pixels (col. 1, lines 37-42).

It would have been obvious to a person of ordinary skill in the art at the time of the inventions to provide to the system as taught by Gibbon et al. taken with Queiroz et al. the feature as taught by Machida in order to put in place the means to generate sub-frames for producing an images based on pixels selected from specific blocks of pixels.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon et al. taken. with Queiroz et al. in view of Machida as applied to claim 18 in item 5 above, and further in view of Nagumo et al. (Pub. No. 2002/0075372 A1).

Relative to claim 19, Gibbon et al. taken. with Queiroz et al. in view of Machida **does not teach** the combinations of the pixels in each identified block comprise weighted sums of the pixels in each identified block.

Nagumo et al. **teaches** image recording method and apparatus enlarging isolated dots (pgs. 2/3, paras. 0022-0031); Nagumo et al. further **teaches** the combinations of the pixels in each identified block comprise weighted sums of the pixels in each identified block (pg. 6, para. 0095).

It would have been obvious to a person of ordinary skill in the art at the time of the inventions to provide to the system as taught by Gibbon et al. taken with Queiroz et al. in view of Machida the feature as taught by Nagumo et al. in order to put in place pixel blocks with pixel adjusted to the desired color level.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon et al. taken. with Queiroz et al. in view of Machida as applied to claim 18 in item 5 above, and further in view of Hong et al.

Gibbon et al. taken. with Queiroz et al. in view of Machida **does not teach** generating a first sub-frame and second sub-frame based on combinations of pixel values from the image data wherein the combinations are linear combinations.

Hong. et al. **teaches** combinations of pixel values from the image data wherein the combinations are linear combinations (pg. 4, para. 0055).

It would have been obvious to a person of ordinary skill in the art at the time of the inventions to provide to the methodology as taught by Gibbon et al. taken. with Queiroz et al. in view of Machida the feature as taught by Hong et al. in order to facilitate generation of high resolution images.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claim 23 is rejected under 35 E.S. C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 23, line 1; use of the term "having" without further definition can be subjected to having more than one interpretation; to avoid the potential of this misinterpretation, the phrase "encoded with" should be substituted for the term 'having'.

Refer to Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility , page 53.

10. Claim 24 is rejected in that it is dependent on rejected independent claim 23.

Allowable Subject Matter

11. Claims 2-10, 12, 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claim 2, the major difference between the teachings of the prior art of record

(Lewis, (USP 6,040,812) ; Gibbon, (WO 01/69942 A12) and Queiroz et al., (Pub. No. US 2001/0000711 A1) and that of the instant invention is that said prior art of record **does not teach** the method wherein alternating between displayed the first sub-frame and displaying the second sub-frame further includes alternating between displaying the first sub-frame in a first position , displaying the second sub-frame in the second position , displaying the third sub-frame in a third position spatially offset from the first position and the second position, and displaying the fourth sub-frame in a fourth position spatially offset form the first position, the second position and the third position.

Relative to claim 3, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the method step wherein the first and the second sub-frames each include a plurality of pixels, the method further comprising: assigning a value to each pixel in the first and the second sub-frames based on a weighted sum of a plurality of pixel values form the image data.

Relative to claim 4, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the method step wherein the first and the second sub-frames each include a plurality of pixels, the method further comprising; assigning a value to each pixel in the first and th second sub-frames based on a weighted sum of four pixel values form the image data.

Relative to claim 5, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the method step wherein the image data includes a plurality of blocks of four pixels, the first and the second sub-

frames each including a plurality of pixels, each pixel in the first and the second sub-frames corresponding to one of the blocks.

Relative to claim 12 and 22, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the method step wherein generating a fist sub-frame and a second sub-frame based on combinations of pixel values from the image data wherein the combinations are non-linear combinations.

Relative to claim 20, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the system wherein the combinations of the pixels in each identified block comprises weighted sums of the pixels in each identified block wherein each bock comprises a 2x2 array of four pixels.

12 Claims 13-17 are allowed.

13. The following is an examiner's statement of reasons for allowance:

Relative to claim 13, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** a system for displaying an image, the system comprising: a buffer configured to receive image data for the image , the image data including a plurality of blocks of pixels; an image processing unit configured to define first and second sub-frames, the first and the second sub-frames each including a plurality of pixels, each pixel in the first and the second sub-frames corresponding to one of the blocks, and wherein the image processing unit is configured to assign a value to each pixel in the first and the second sub-frames based on a value of at least one pixel in a corresponding block multiplied by at least one weight value; and a display device adapted to

alternately display the first sub-frame in a first position and the second sub-frame in a second position spatially offset from the first position.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	5,987,136	Schipper et al.
Pub. No.	US 2004/0207592	Ludden
Pub. No.	US 2003/0058228	Katoh et al.

To Respond

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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February 23, 2007

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